STATE OF MONTANA
MONTANA DEPARTMENT OF TRANSPORTATION
JOB PROFILE

☐ Update

☐ Formal Review

Date Submitted _____

SECTION I - Identification

Working Title: Civil Engineering Specialist

Department: Transportation

Job Code Number: 172515 or 172516

Division: Engineering

Job Code Title: Civil Engineering Specialist

Section & Unit:

Pay Band: 5 & 6

Work Address: 2701 Prospect Ave.
Helena, MT 59601

Position Number: multiple

Phone: (406) 444-6230

☐ FLSA Exempt ☑ FLSA Non-Exempt ☑ Non-Union ☐ MPEA ☐ Blue Collar

Profile Completed By: Engineering management team

Work Unit Mission Statement or Functional Description: Within the Department of Transportation, Civil Engineers will prepare projects for bidding and coordinate highway construction. Areas of assignment include Highways, Bridge, Materials, Traffic & Safety, Environmental, and five District Construction Offices in Missoula, Butte, Great Falls, Glendive, and Billings.

The **Highways Bureau** in the Engineering Division is responsible for all aspects of the development and design of highways. The Bureau consists of the Photogrammetry & Survey Section, the Hydraulics Design Section, and the Road Design Section.

The **Bridge Bureau** in the Engineering Division is directly involved with the Planning, Design, Construction, Maintenance and Operation of the bridges on Montana's highway system. This applies to the State maintained system and, to a lesser extent, the county maintained systems. The Bureau consists of the Bridge Management Systems Section and the Bridge Design Section.

The **Materials Bureau** in the Engineering Division develops and implements comprehensive data collection, testing, and analysis programs that facilitate pavement project selection and pavement surface and subsurface design by supporting the quality of materials incorporated

into Montana's highway system. The Bureau consists of the Geotechnical Section, Physical Testing Section, and Pavement Analysis Section.

The **Traffic and Safety Bureau** in the Engineering Division is responsible for managing and coordinating highway safety programs and for providing management, design and technical support with respect to traffic engineering within the department. The Bureau is responsible for developing and reviewing plans and specifications for highway safety projects. The Bureau consists of the Traffic Safety Section, Traffic Engineering Section and the Rail/Highway Safety Unit.

The **Environmental Bureau** in the Planning Division provides guidance to all Divisions and the Director's Office to minimize or mitigate the impacts of transportation construction and maintenance activities on natural, social, and economic resources. Resources evaluated by Environmental Services include, but are not limited to: those pertaining to fish, wildlife, vegetation, wetlands, water quality, historic, cultural, archaeological, paleontological, hazardous and solid waste, erosion control, air quality, noise, visual, social, and economic.

The **District Offices** located across the state are responsible for supervising contract administration through the supervision and inspection of materials and workmanship on highway construction projects; performance of safety inspections on public owned bridges; and performance of preconstruction and construction surveys. These offices are located in Billings, Glendive, Butte, Missoula and Great Falls.

Describe the Job's Overall Purpose: Positions in the assigned bureau or district are responsible for conducting in-depth engineering and analysis, administer contracts, oversee projects and project design, and may serve as a lead worker. Work is assigned through instruction on specific engineering objectives and direction and the incumbent determines the best solution based on established engineering guidelines, knowledge and skills. Completed work is reviewed for application of sound professional judgment.

Entry level:

Applies prescribed engineering techniques and engineering procedures in accordance with established criteria in order to perform assigned tasks. The work is routine and technical therefore does not require previous experience. Collects data, gathers information or documents, performs standard computations or analysis and prepare drawings and visual aids. Possesses basic oral and written communication skills and interacts with other staff. The employee acquires an understanding of professional and ethical responsibilities and develops basic skills.

Mid level:

Acquires basic engineering knowledge and develops skills in a specific assigned work area. Applies standard engineering techniques, procedures, and criteria to perform assigned tasks as part of a wide-ranging assignment. Exercises limited judgment on details of work and in application of standard methods for conventional work. Performs basic engineering design tasks and provides assistance to other tasks such as; preparation of permit applications, material testing, drawings, and computer-aided design (CAD) work. Receives close

supervision on unusual or difficult problems, and general review of all aspects of work and interacts with staff, general public, officials, and contractors.

Top level:
Performs routine engineering tasks in the assigned area with little or no supervision. Acquired engineering competence in a specific work area should reasonably transfer to other work areas at the same level.

SECTION II - Major Duties or Responsibilities

This section should be a clear concise statement of the position's major duties and the approximate percent of work time for each duty **% of Time**

A. Performs engineering design tasks under a variety of circumstances in accordance with the assigned bureau or district. The setting may range from a traditional office environment to on-site environments that require engineering design activities which can be developed and varied. **35%**

Highways Bureau
Assesses data from a variety of internal and external sources. Determines how to address the overall design process. Coordinates work with other disciplines, federal and state agencies and tribal or local governments. Prepares a design package that is accurate, constructible and cost effective. Adjusts standards and practices to fit routine encounters of conflicting information, views or interests .
Prepares design packages incorporating the following :

- General layout/plan and profiles
- Design details
- Avoidance and mitigation measures
- Quantities and cost estimates
- Special provisions

Prepared to conduct dynamic engineering design activities in field and on-site environments, providing problem resolution.

B. Prepares or participates in preparing project documents, and other engineering reports. **35%**

Highways Bureau
Prepares documentation of reviews and decisions on project related issues. The documentation includes milestone reports (e.g. Preliminary Field Review Report, Scope of Work Report, Plan-In-Hand Report etc.), meeting minutes and other project-related decisions. Documentation involves proposed solutions, the evaluation process and the basis for the final decisions

C. Prepares and edits specifications. **10%**

Construction Bureau – Specifications Specialist
Writes, edits and maintains portions of the Standard Specifications for Road and Bridge Construction. Understands and provides resolution to conflicting issues involving several sub-disciplines such as material science, construction techniques, and design requirements.

Bridge Bureau or Highways Bureau
Prepares draft special provisions to address unique situations, materials and construction practices. Ensures that the method of measurement and basis of payment correspond to the project plans and that the special provisions do not conflict with MDT's Standard Specifications.

D. Performs research and investigations. **10%**

Materials Bureau – Pavement Analysis Unit
Investigates product failure or trend. Gathers various information from multiple sources such as surfacing design information, materials information, materials testing results, construction reports and interviews. Determines solution based on judgment of the quality and accuracy of what is available, and draws conclusions or recommends actions based on findings.

Highways Bureau
Collects and analyzes data within a given set of parameters to determine the following

- Measures that may be needed to address changes in traffic volumes and characteristics
- Impacts to existing systems or corridors
- Compatibility with existing plans or environmental documents
- Effects of changes in design practices

Participates in larger studies such as corridor studies or Value Analysis studies as needed.

E. Assigns tasks to and coordinates work with entry-level engineers, technicians, or administrative staff. **5%**

All Areas
Assesses the capabilities of entry level engineers, technicians or administrative staff and provides appropriate assignments. Reviews work for accuracy and provides technical guidance as needed.

F. Assists in determining schedule, cost estimating, forecast progress or budget requirements. **5%**

District Construction
May be assigned to evaluate the contractor's Critical Path Method Diagram (CPM) for accuracy, reasonableness, constructability and inclusion of all major work activities on large, complex construction projects. Reviews CPM diagrams on a regular basis to insure projects are built on schedule and potential delays or claims are assessed timely. Forecasts project progress and completion, schedules project crews and cash flow forecasting based on Information from the CPM diagram.

Highways Bureau
Meets project schedules and keeps projects on budget. Identifies issues that may require additional time as well as areas where the allotted time can be reduced. Considers other factors such as scheduling and seeks out cost savings or minimizing cost increases.

The following duties and/or specific tasks listed under section II above are considered "essential functions" because they require specialized expertise and skill and are the primary reasons the job exists (they must be performed by this position with or without accommodations):
All duties listed above are considered essential functions.

The following mental and physical demands are associated with these essential functions:

PHYSICAL

- Work is performed in an office setting or in the field on construction projects depending upon work location and assignment.
- Travel is required and can vary from a few times per year, with one or more overnight stays to extensive overnight travel that may occur on short notice, weekends and holidays and working outdoors in all types of weather.
- Duties may be performed on active construction sites in close proximity of heavy equipment, hot asphalt and high speed traffic.
- The work environment can involve harsh or caustic fumes, dust, extreme temperatures, wind, rain and snow.

MENTAL

See Mental Agilities listed under education and experience section.

- Motivation to accomplish goals
- Ability to deal with complexity
- Emotional Intelligence
- Attitude toward change
- Focus on results

Does this position supervise others? ☐ **Yes** ☑ **No**

Attach an Organizational Chart.

SECTION III - Minimum Qualifications - List minimum requirements for the first day of work.

Critical knowledge and skills required for this position:

KNOWLEDGE: Develops sufficient engineering knowledge, skill and judgment in a specific practice area to perform the routine engineering tasks in the assigned area. Although the knowledge acquired is in a specific work area, that knowledge and competence should reasonably transfer to other work areas at the same level.

Broad knowledge of engineering practices and principles and construction methods, processes and procedures, computer-assisted drafting and design software, and engineering techniques are required for projects of moderate complexity. A journey level knowledge of federal guidelines and procedures regarding road design and construction is also required.

SKILLS: Possesses effective oral and written communication skills in order to assist with client, customer, or official contacts and communication pertaining to specific assignment or meetings.

Career Level Assignments:

Employees who do not fully meet the qualifications of a journey level Civil Engineering Specialist may be considered for career level assignments.

Entry level
Education:
BS Degree in Civil Engineering or in an engineering field related to this type of work. Must obtain an engineering intern certification within two years of hire.

Experience:

☑ No prior experience required.

Mid level
Education:
BS Degree in Civil Engineering or in an engineering field related to this type of work. Must have an engineering intern certification.

Experience:

☑ 1 year to 2 years

Top level
Education*:*
BS Degree in Civil Engineering or in an engineering field related to this type of work. Requires an engineering intern certification or is licensed as a Professional Engineer.

Experience: Demonstrated ability to apply journey level engineering knowledge and skills to a broad variety of engineering tasks. This experience is typically achieved within 3 or more years.

Mental Agilities:
The **entry and mid levels** will exhibit the following agilities:

Motivation to accomplish goals: Has set SMART career goals – short term and long term. Can adjust career goals to account for reality. Seeks increased responsibilities.

Ability to deal with complexity: Thinks in an analytical manner involving limited, observable or straightforward variables. Identifies appropriate resources for questions or directions. Analyzes patterns and connections. Prioritizes ideas. Learns from mistakes.

Level of Emotional Intelligence: Treats people fairly, with courtesy and respect. Collaborates in order to meet goals or to gain cooperation with others. Shares appropriate information with others. Admits mistakes and takes actions to correct mistakes. Handles failures constructively.

Attitude toward change: Switches roles or procedures easily to achieve work results. Recognizes that change in the workplace is inevitable. Responds positively to changes in direction, priorities, responsibilities or assignments.

Focus on results: Exhibits a strong drive to achieve and excel. Aware of specific objectives and sets realistic goals.

The **top level** will exhibit the following agilities:

Motivation to Accomplish Goals
- Guides peers/subordinates in setting goals for the work unit.
- Actively pursues the goals of the work unit.
- Actively participates in the adaptation of work unit goals when necessary.

Ability to Deal with Complexity
- Is able to think logically and pragmatically about goals, problems, and/or issues.
- Breaks down problems/issues into their component parts.

Emotional Intelligence
- Genuinely values others' input and expertise.
- Shares knowledge and expertise with others.
- Proactively adapts one's own leadership behaviors to meet differing requirements and varying individual, team, and organizational demands.

Attitude Toward Change
- Recognizes that the way a change is implemented is critical to its success and works to understand how others will perceive the change.
- Identifies and persuasively communicates the benefits of changes to team members.
- Implements change to processes, procedures and systems to enhance productivity, efficiency, and quality.
- Is willing to try new approaches and volunteers to pilot changes.

Focus on Results
- Seeks to eliminate barriers or obstacles to get results.
- Seeks means of making improvements to processes and methods.
- Demonstrates energy and enthusiasm to bring projects or tasks to completion.

SECTION IV – Other Important Job Information

- ☐ Fingerprint check
- ☐ Background check
- ☑ Valid driver's license
- ☐ Other; Describe

SECTION V – Signatures

Signature indicates this statement is accurate and complete.

Employee:

Name: _____ Title: _____

Signature: _____ Date: _____

Immediate Supervisor:

Name: _____ Title: _____

Signature: _____ Date: _____

Bureau Chief:

Name: Paul Ferry _____ Title: Highways Bureau Chief

Signature: _____ Date: _____

Division/District Administrator:

Name: Duane Kailey _____ Title: Chief Engineer

Signature: _____ Date: _____

Department Designee:

Jennifer Jensen/Designee Chief Human Resources Officer
Human Resources Division

Signature: _____ Date: _____